



## Joint Davie County-Mocksville Water Supply Improvements

Public Meeting

January 24, 2022

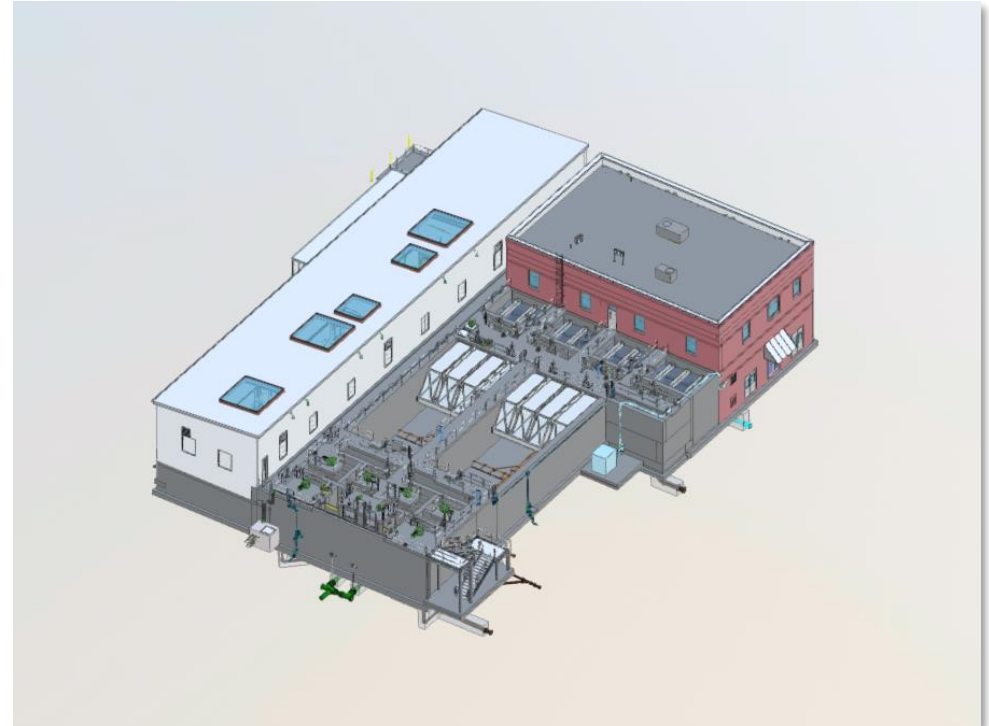


## Meeting Logistics

- The Engineering Report and Environmental Information Document can be found at:  
<https://www.daviecountync.gov/1147/Water-Supply-Improvement-Project>
- Please use Microsoft Teams Live chat to submit questions during the Public Meeting
- Any questions or comments received during the Public Meeting will be addressed at the end of the presentation
- All comments are due by January 25, 2022 at 5:00 p.m.

# Agenda

- Introductions
- Project Purpose and Need
- Proposed Project Description
- Project Alternatives
- Environmental Impacts
- Financial Analysis



*Model of New Cooleemee Water Treatment Plant*

# Introductions



# Hazen

## **Davie County Public Utilities**

— Owner

## **The Town of Mocksville**

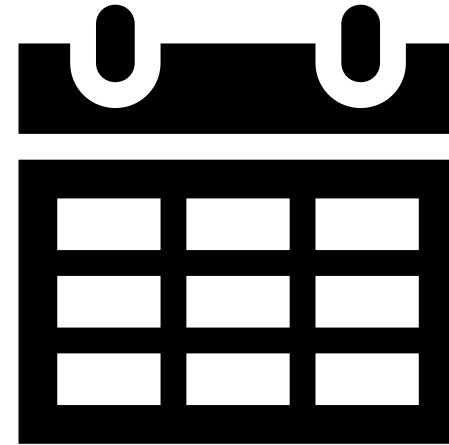
— Owner

## **Hazen and Sawyer**

— Engineer

## Purpose of Public Meeting

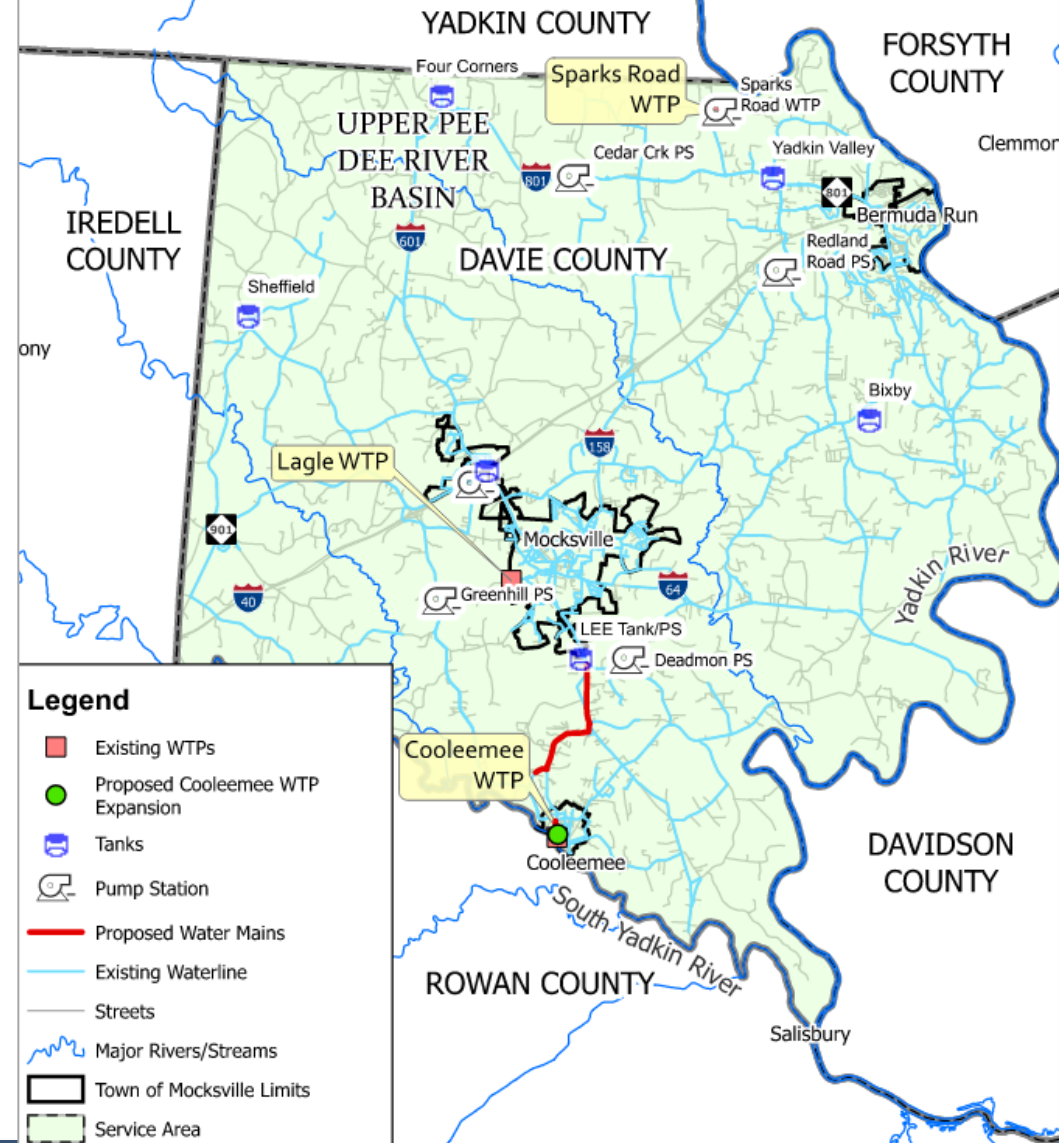
- Inform the community regarding the Davie County and Town of Mocksville Water Supply Improvements Project
- Receive input from the public on the proposed project



# Project Purpose and Need

# Background

- Existing Water Treatment Facilities
  - Davie County Cooleemee Water Treatment Plant (WTP) – 2.6 million gallons per day (mgd)
  - Town of Mocksville Lagle WTP – 2.0 mgd
  - Both are aging facilities needing major upgrades or decommissioning
- Existing interconnections between the County and Town are undersized and cannot meet water supply demands
- Water supply alternative combining resources and meeting both utilities needs is being undertaken



## Project Purpose and Need

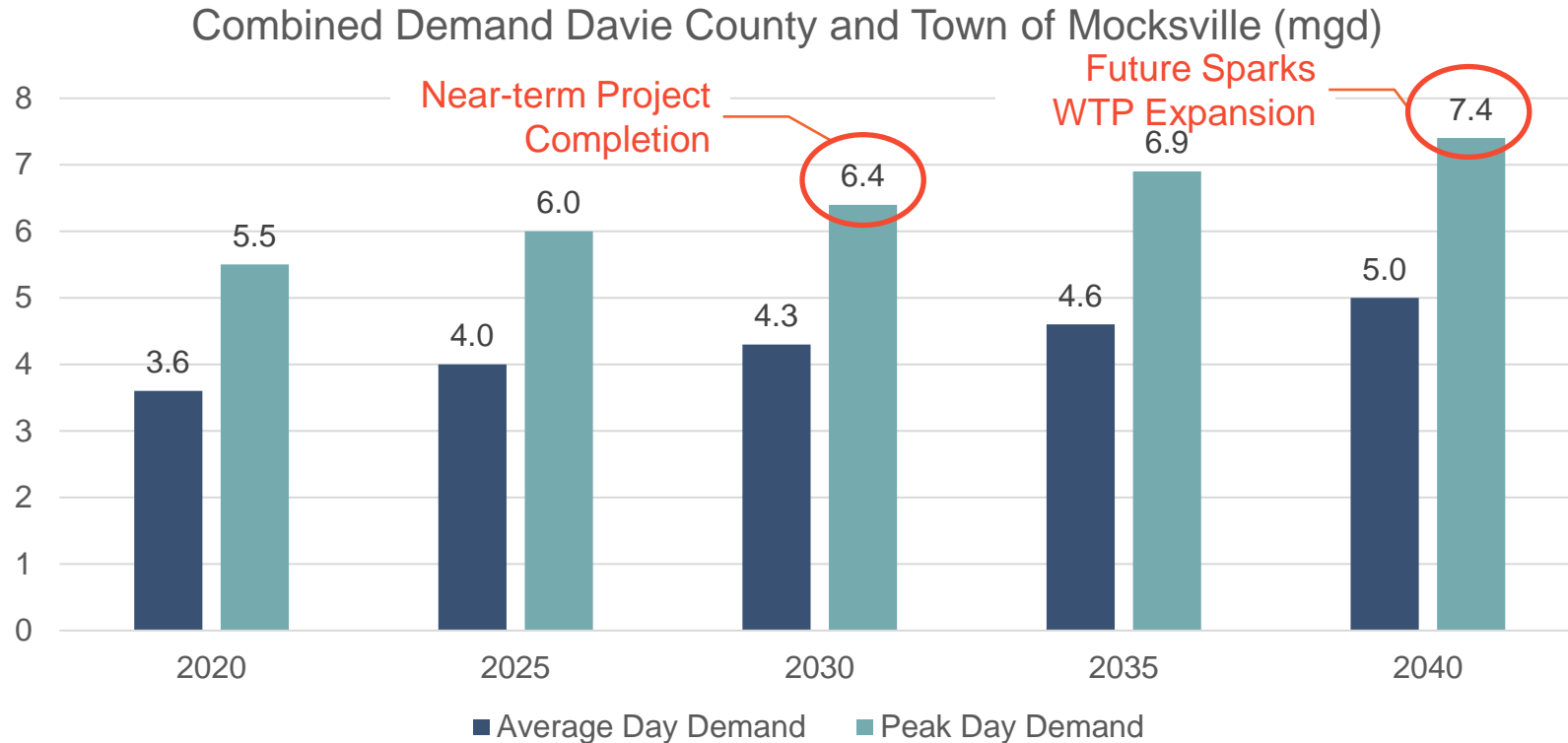
The proposed near-term project to replace the existing 2.6-mgd Cooleemee WTP with a new 3.5-mgd facility and decommission the Lagle WTP will meet near-term water supply demands while minimizing rate impacts.

Facility	Current Capacity (mgd)	Capacity at Near-Term Project Completion (mgd)	Capacity with Future Sparks WTP Expansion (mgd)
Sparks WTP	3.0	3.0	4.5
Cooleemee WTP	2.6	3.5	3.5
Lagle WTP	2.0	0.0 - Decommissioned	0.0 - Decommissioned
Total Capacity	7.6	6.5	8.0



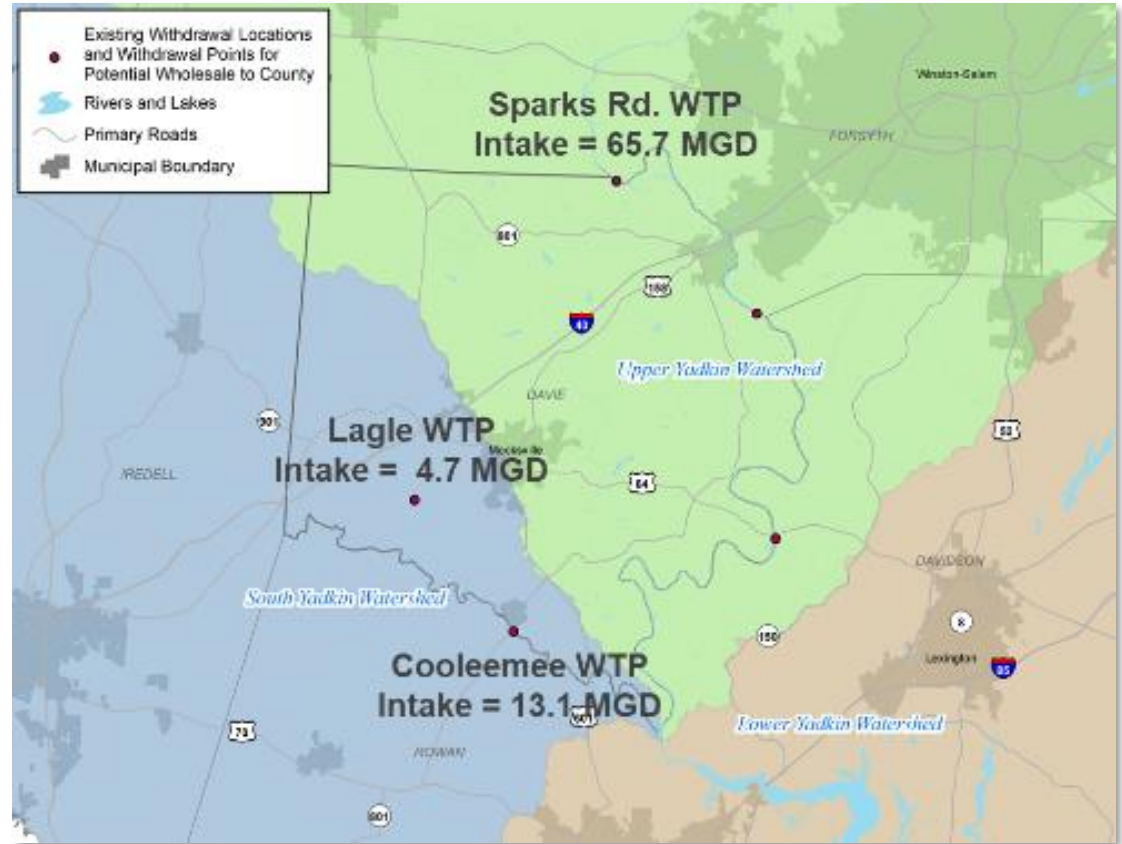
# Project Purpose and Need

A future expansion of the Sparks WTP will be planned to meet 2040 projected demands.



# Safe Yield Analysis

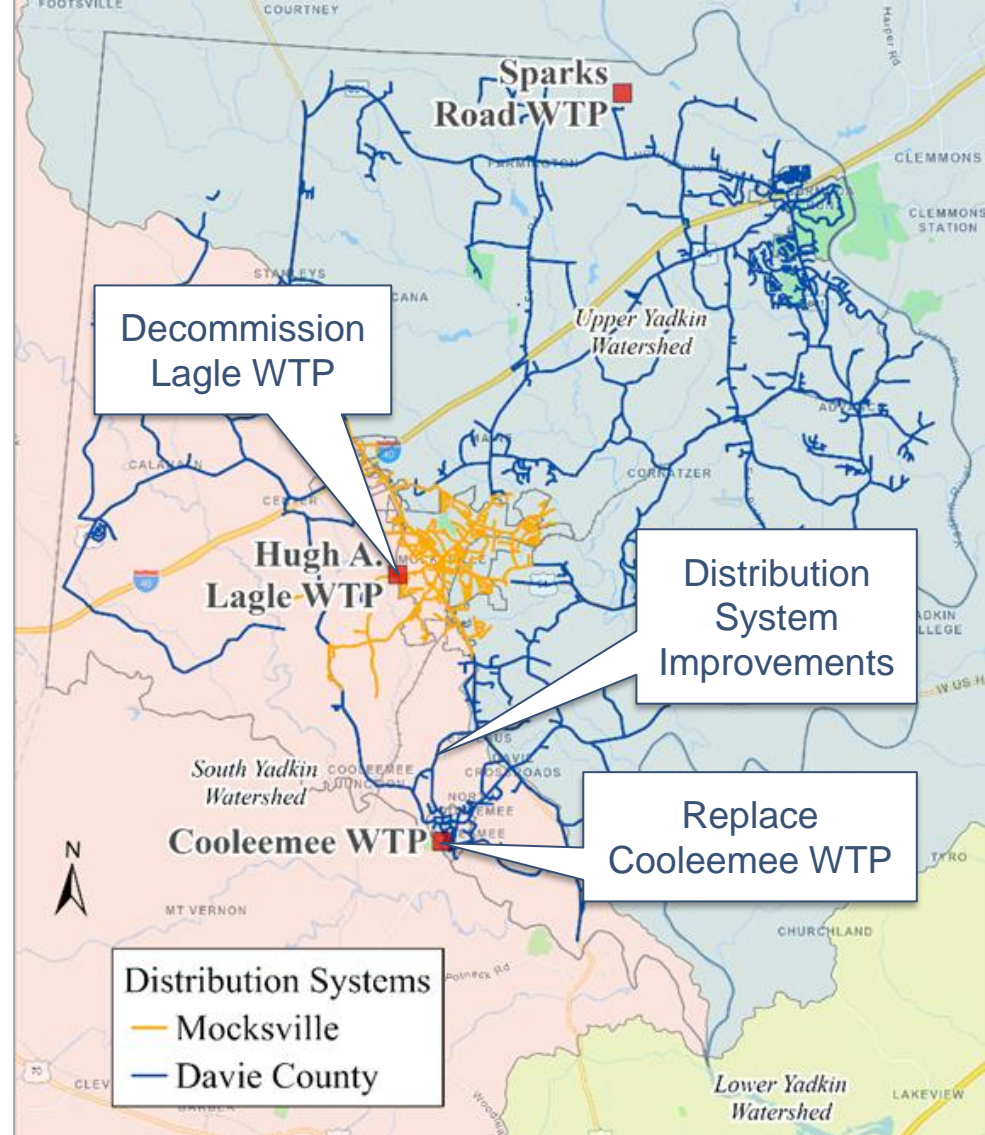
- “Safe Yield” is a statistical measure of water available over an extended period without depleting that source even during drought conditions.
- Hunting Creek has limited safe yield
- Maintaining the South Yadkin River as a supply source (with the Cooleemee WTP) provides resiliency during droughts



# Proposed Project Description

# Project Description

- Replace the existing Cooleemee WTP with a new 3.5-mgd facility
- Includes many process design enhancements
- Decommission the 2.0-mgd Lagle WTP
- Construct 18,500 linear feed (LF) of 12-inch and 16-inch transmission mains parallel to existing water lines



# Project Location



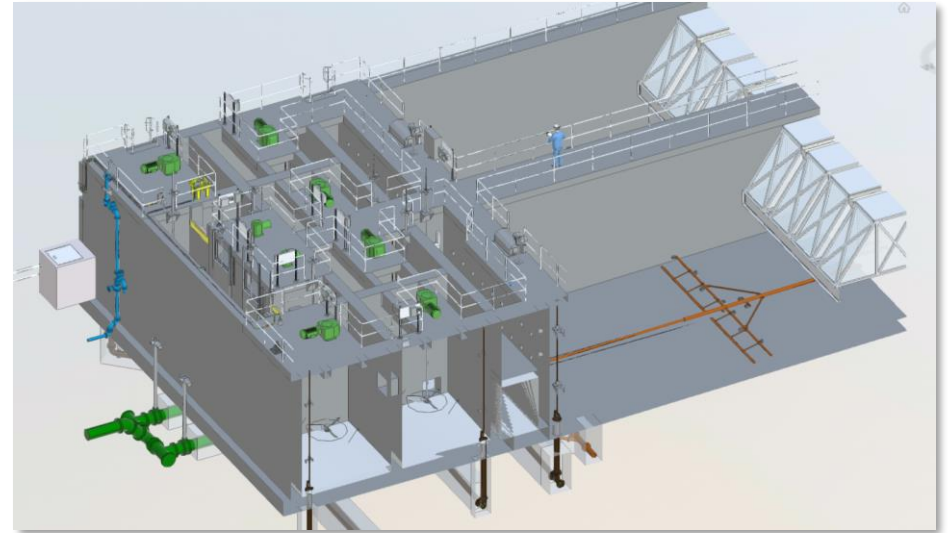
Proposed 12"  
Transmission Mains

Location of Existing and  
New Cooleemee Water  
Treatment Plant

Proposed 16"  
Transmission Mains

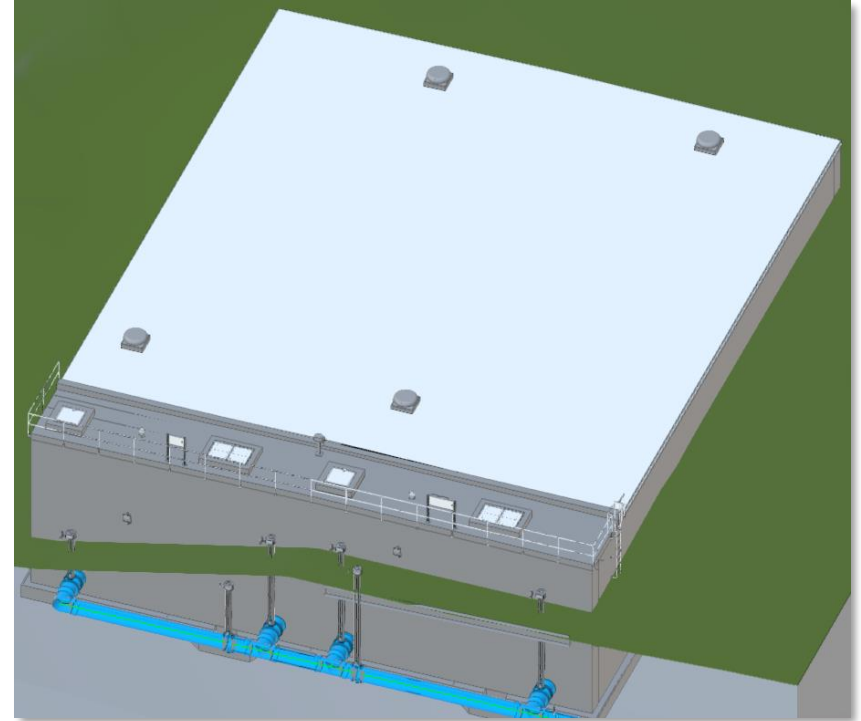
# New Cooleemee WTP

- Raw Water Pump Stations (RWPS)
  - New pumps, piping, and supporting infrastructure (both existing RWPS)
- Raw Water Transmission Main
  - New 16-inch pipeline to convey raw water to new WTP for treatment
- Coagulation and Clarification
  - New basins and mixers to coagulate solids and settle them before filtration
  - Two (2) rapid mix/flocculation/sedimentation trains



# New Cooleemee WTP

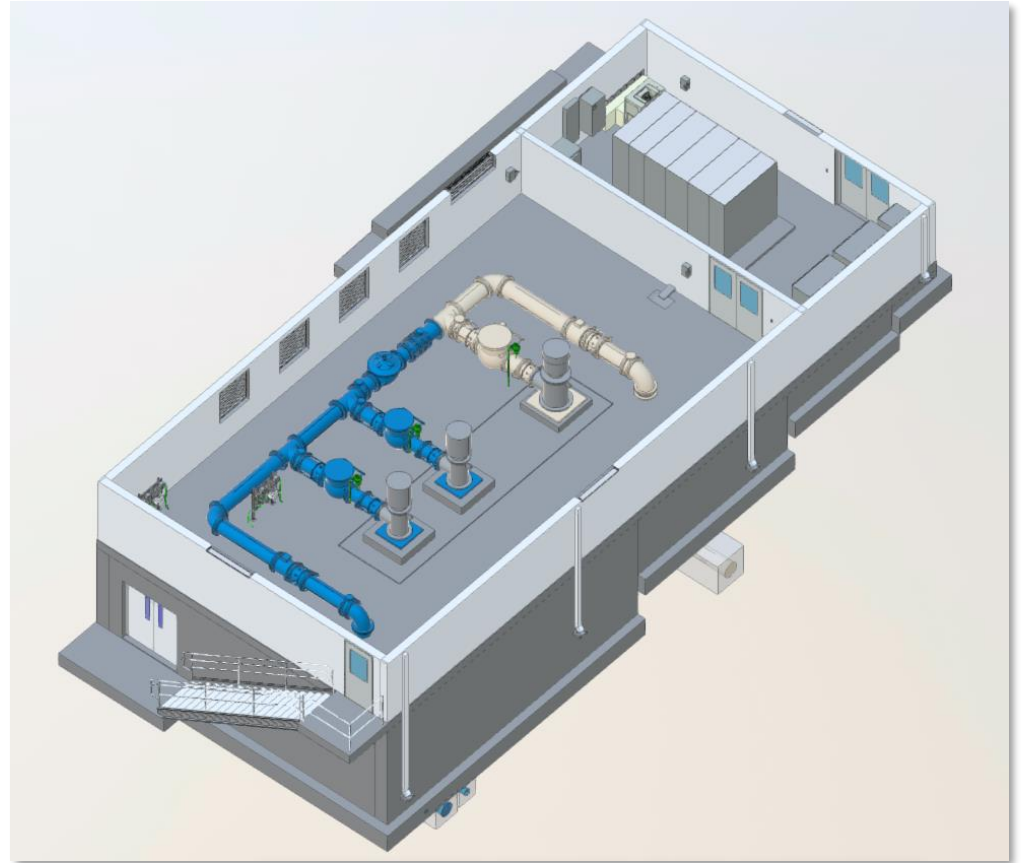
- Filters
  - Four (4) new dual-media filters (sand + anthracite)
  - Backwash infrastructure (air scour blower and backwash pump)
- Ultraviolet (UV) Disinfection
  - Two (2) UV reactors to provide a multiple barrier pathogen disinfection strategy
- Clearwell
  - One (1) 900,000-gallon clearwell for chlorine contact and equalization





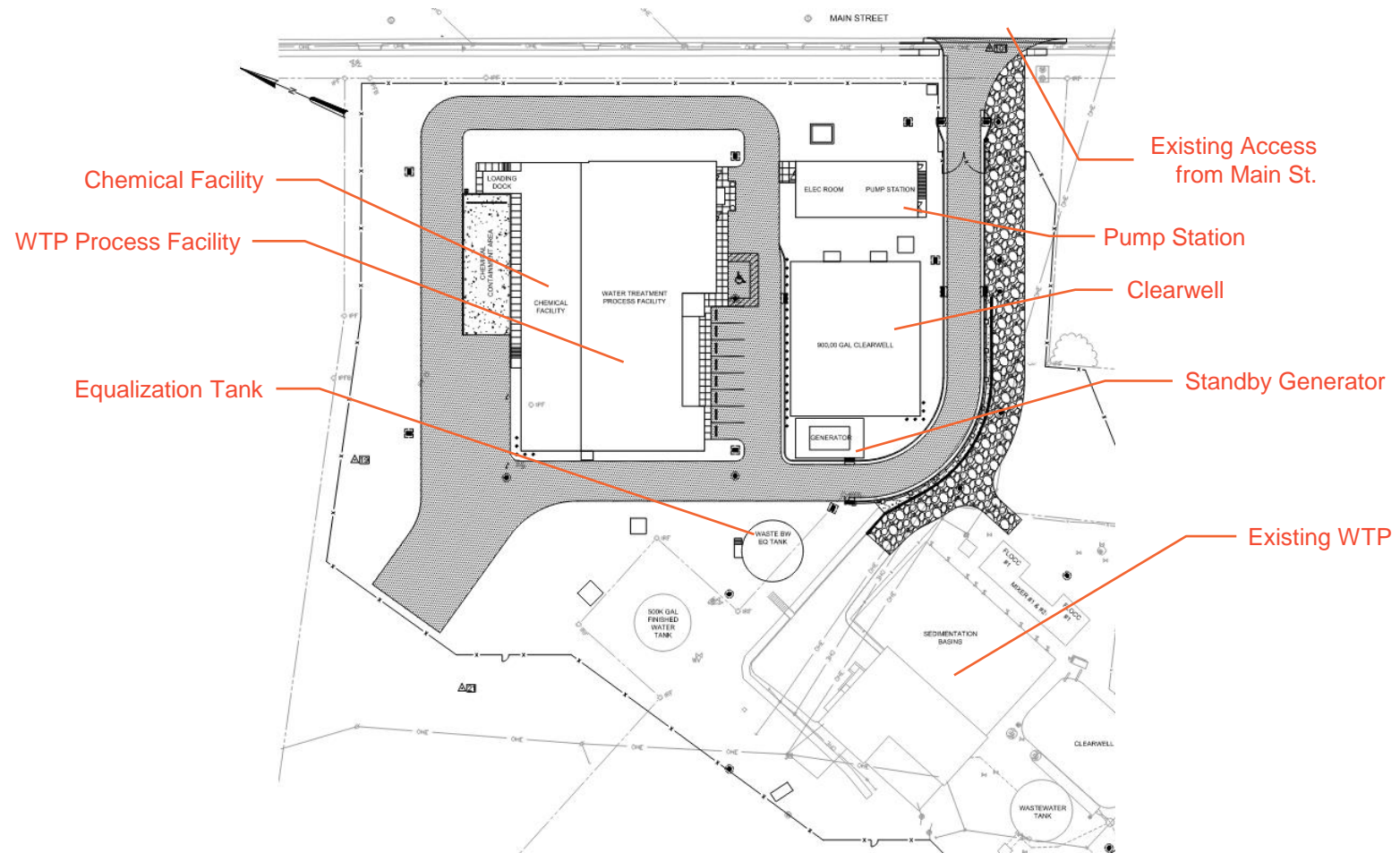
# New Cooleemee WTP

- High Service Pump Station
  - Two (2) distribution pumps
  - One (1) backwash pump
- Treatment Residuals
  - One (1) 90,000-gallon equalization tank
  - All residuals discharged to sewer
- Chemical Facility
  - Chemical storage tanks and dosing pumps



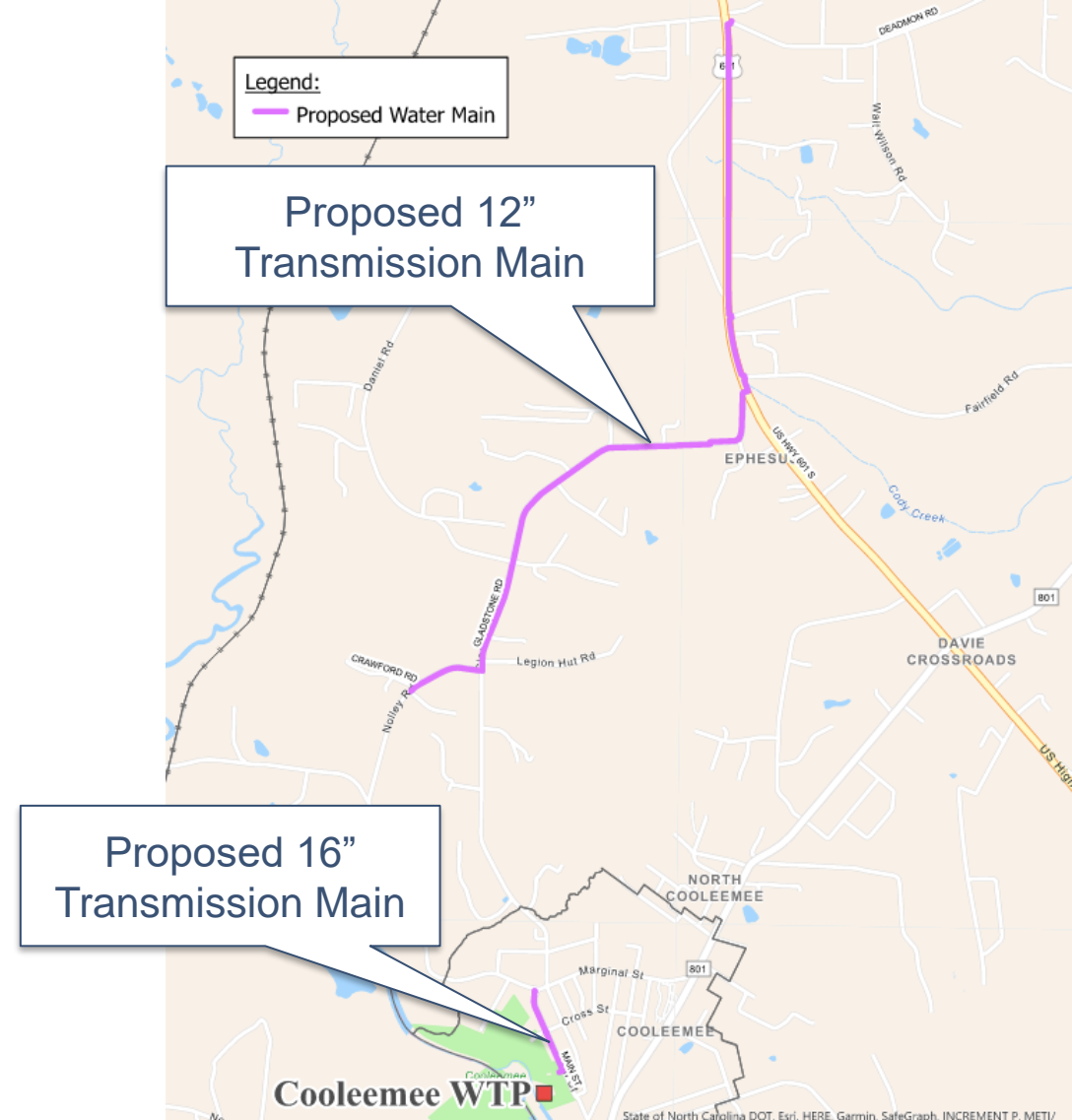


# WTP Site Plan



# Transmission Main Expansion

- 16-inch pipe is needed along Main St. to convey water from the new Cooleemee WTP to the distribution system
- 12-inch pipe along Nolley Rd, Gladstone Rd, and US 601 is needed to supply the Mocksville distribution system and complete loops in the County distribution system



# Project Alternatives

# Project Alternatives



No-Action Alternative

1

Phasing Option 1: New Cooleemee WTP (3.5 mgd) immediate term and Davidson Water interconnection (1.0 mgd) deferred until 2030 (Sparks Road WTP expansion deferred 20 years)

2

Phasing Option 2 (Preferred): New Cooleemee WTP (3.5 mgd) immediate term and expansion of Sparks Road WTP (4.5 mgd) deferred until 2030 (DWI interconnect deferred 20 years)

3

Phasing Option 3: Davidson Water Interconnection (3.5 mgd) immediate term and expansion of Sparks Road WTP (4.5 mgd) deferred until 2030

# Determination of Alternatives

Alternative	Feasible?	Reasons for Accepting / Rejecting
No-Action	No	The no-action alternative does not provide the required infrastructure improvements to meet current water demands or health needs of the service area.
Phasing Option 1	No	This alternative could meet the project purpose and need. However, it has the highest capital costs of the three phasing options and does not provide the highest level of ownership over the water supply system compared to phasing option 2.
Phasing Option 2 (Preferred)	Yes	This alternative addresses the project purpose and need. Environmental impacts were fully evaluated. The alternative is preferred due to minimal rate impacts to Davie County and the Town of Mocksville while providing resiliency in the water supply system.
Phasing Option 3	No	This alternative could meet the project purpose and need. However, the dependency on the interconnection with DWI could result in uncertainty in future rates and operating costs. Additionally, this phasing option does not provide the County and Town the most resiliency in the water supply system.

# Environmental Impacts

# Environmental Impact Comparison of Alternatives

Alternative	Environmental Impact Comparison
No-Action	The no-action alternative could potentially result in environmental impacts during extreme low-flow events, which are currently a concern noted by both the County and Town's staff at their respective intakes and treatment facilities.
Phasing Option 1	This alternative would require more water transmission main improvements compared to the preferred alternative increasing land-disturbing activities.
Phasing Option 2 (Preferred)	<b>Refer to next slides for a detailed discussion of the anticipated environmental impacts of the preferred alternative.</b>
Phasing Option 3	This alternative would require more water transmission main improvements compared to the preferred alternative increasing land-disturbing activities.

# Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

Resource Category	Potential Direct Impacts	Measures to Mitigate Direct Impacts	Potential Secondary and Cumulative Impact	Local Ordinances to Mitigate Secondary and Cumulative Impacts
Topography and Floodplains	<ul style="list-style-type: none"> <li>Erosion and sedimentation during construction</li> <li>Addition of fill material</li> <li>Excavation and grading</li> </ul>	<ul style="list-style-type: none"> <li>Disturbed areas returned to original grade</li> <li>No new structures in floodway or floodplain</li> <li>Erosion and Sedimentation Plan</li> </ul>	<ul style="list-style-type: none"> <li>Potential future growth may lead to modification of topography for construction</li> </ul>	<ul style="list-style-type: none"> <li>Local erosion and sedimentation ordinances</li> <li>Local floodplain ordinances</li> </ul>
Soils	<ul style="list-style-type: none"> <li>Erosion and sedimentation</li> <li>Impact to water resources from construction runoff and spillage</li> </ul>	<ul style="list-style-type: none"> <li>Erosion and Sedimentation Plan</li> <li>Waste material storage plan</li> </ul>	<ul style="list-style-type: none"> <li>Potential increase in surface water turbidity</li> </ul>	<ul style="list-style-type: none"> <li>Local erosion and sedimentation ordinances</li> </ul>
Prime and Unique Farmland	<ul style="list-style-type: none"> <li>No impact</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Potential loss of prime and unique farmland due to urban growth</li> </ul>	<ul style="list-style-type: none"> <li>Davie County Comprehensive Plan and Davie County Zoning Code</li> </ul>



# Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

Resource Category	Potential Direct Impacts	Measures to Mitigate Direct Impacts	Potential Secondary and Cumulative Impact	Local Ordinances to Mitigate Secondary and Cumulative Impacts
Land Use	<ul style="list-style-type: none"> <li>Conversion of maintained lawn to WTP facility</li> </ul>	<ul style="list-style-type: none"> <li>Davie County Comprehensive Plan</li> </ul>	<ul style="list-style-type: none"> <li>Potential loss of open space, forested lands, or agricultural areas to urban uses</li> <li>Potential for overuse of parks, greenways, and natural areas from growth</li> </ul>	<ul style="list-style-type: none"> <li>Davie County Comprehensive Plan and Town of Cooleemee Zoning Ordinance</li> </ul>
Forest Resources	<ul style="list-style-type: none"> <li>Forest clearing minimized for construction of the project components</li> </ul>	<ul style="list-style-type: none"> <li>Minimal clearing of mature forest or significant forest resources</li> </ul>	<ul style="list-style-type: none"> <li>Potential loss of forested land for urban growth</li> </ul>	<ul style="list-style-type: none"> <li>Davie County Comprehensive Plan</li> </ul>
Wetlands and Streams	<ul style="list-style-type: none"> <li>No direct wetland impacts from construction</li> <li>Temporary, minor impacts to a stream during waterline installation</li> </ul>	<ul style="list-style-type: none"> <li>Erosion and Sedimentation Plan</li> <li>BMPs used for protection of surface waters</li> </ul>	<ul style="list-style-type: none"> <li>Potential for increase in silt and sediment from development activities</li> <li>Potential for loss or disturbance of wetlands from future development</li> </ul>	<ul style="list-style-type: none"> <li>State stream buffer ordinances</li> <li>Local erosion and sedimentation ordinances</li> <li>Local stormwater ordinances</li> </ul>

# Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

Resource Category	Potential Direct Impacts	Measures to Mitigate Direct Impacts	Potential Secondary and Cumulative Impact	Local Ordinances to Mitigate Secondary and Cumulative Impacts
Water Resources	Water quality degradation from runoff and sedimentation during construction	Erosion and Sedimentation Plan	Potential increase in surface water turbidity	Local erosion and sedimentation ordinances
Shellfish and Fish	Water quality degradation from runoff and sedimentation during construction	Erosion and Sedimentation Plan	Potential habitat degradation from development	Local erosion and sedimentation ordinances
Wildlife and Natural Vegetation	Habitat degradation during construction	<ul style="list-style-type: none"> <li>Erosion and Sedimentation Plan</li> <li>Construction areas mostly limited to existing maintained grassed areas</li> </ul>	Potential habitat degradation from development	Davie County Comprehensive Plan

# Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

Resource Category	Potential Direct Impacts	Measures to Mitigate Direct Impacts	Potential Secondary and Cumulative Impact	Local Ordinances to Mitigate Secondary and Cumulative Impacts
Public Lands and Scenic, Recreational and State Natural Areas	No impacts	N/A	No impacts	N/A
Areas of Archaeological or Historic Value	No impacts	Coordinate with SHPO if significant cultural resources are identified during construction.	No impacts	Davie County Comprehensive Plan
Air Quality	Increase in emissions during construction	<ul style="list-style-type: none"> <li>• Proper vehicle maintenance</li> <li>• Wetting of exposed soil and soil stabilization</li> </ul>	Potential increase in air emissions due to growth	Local and state air quality standards

# Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

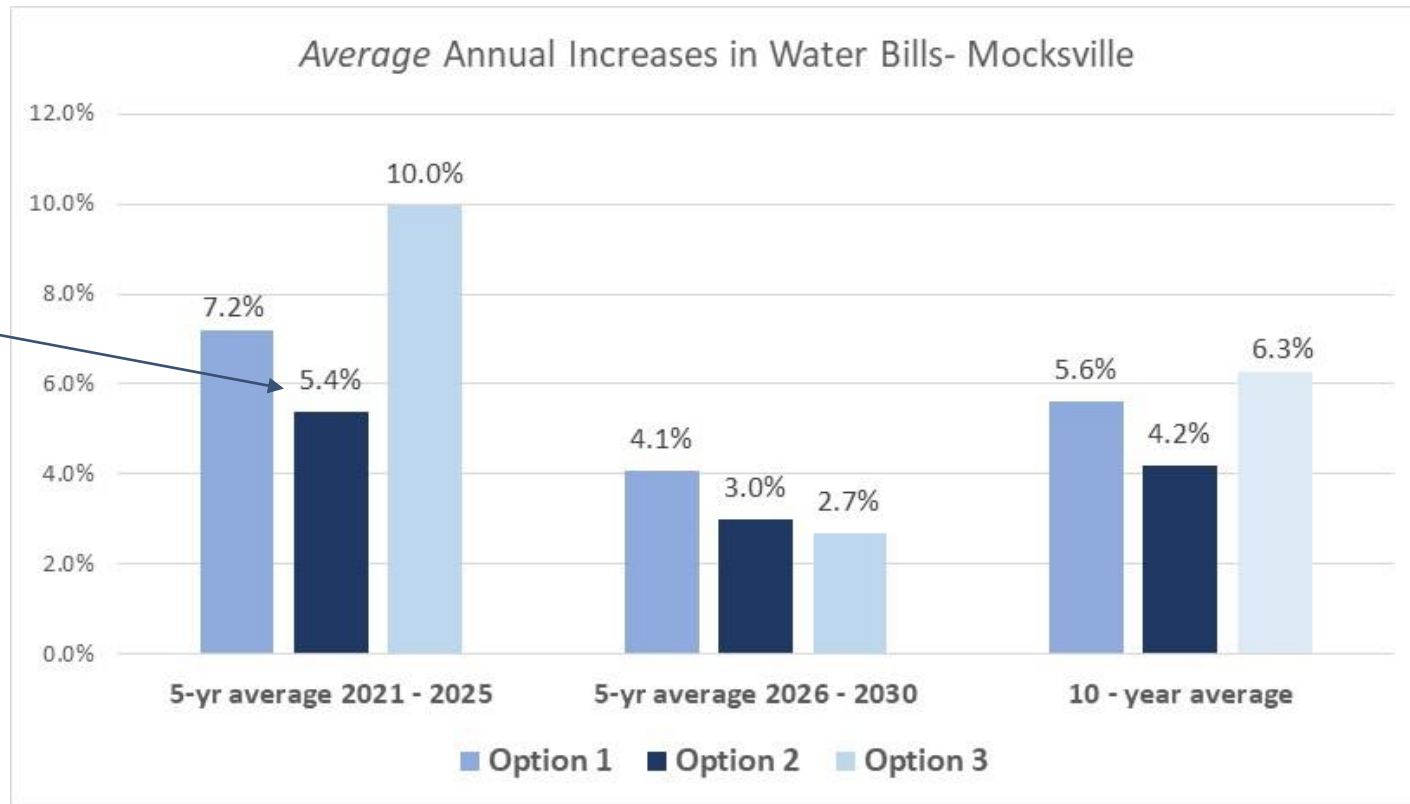
Resource Category	Potential Direct Impacts	Measures to Mitigate Direct Impacts	Potential Secondary and Cumulative Impact	Local Ordinances to Mitigate Secondary and Cumulative Impacts
Noise Levels	<ul style="list-style-type: none"> <li>Noise generated during construction</li> <li>Occasional and temporary noise from emergency generators</li> </ul>	Construction hours limited to M-F, 6:00 am to 7:00 pm to maximum extent practicable.	Increase in traffic noise from growth	Unified Development Ordinance
Introduction of Toxic Substances	Exhaust emissions and oil, fuel, or other vehicle fluid leaks	Proper maintenance and collection and disposal of fluid containers	No impacts	N/A
Environmental Justice – Minority Population	No impacts expected as the block group has a minority population below threshold	N/A	Negligible impacts due to positive result of ensuring adequate, quality water service	N/A
Environmental Justice – Low Income Population	No impacts expected as the block group has a low-income population below threshold	N/A	Negligible impacts due to positive result of ensuring adequate, quality water service	N/A

# Financial Analysis

# Estimated Customer Impacts - Mocksville

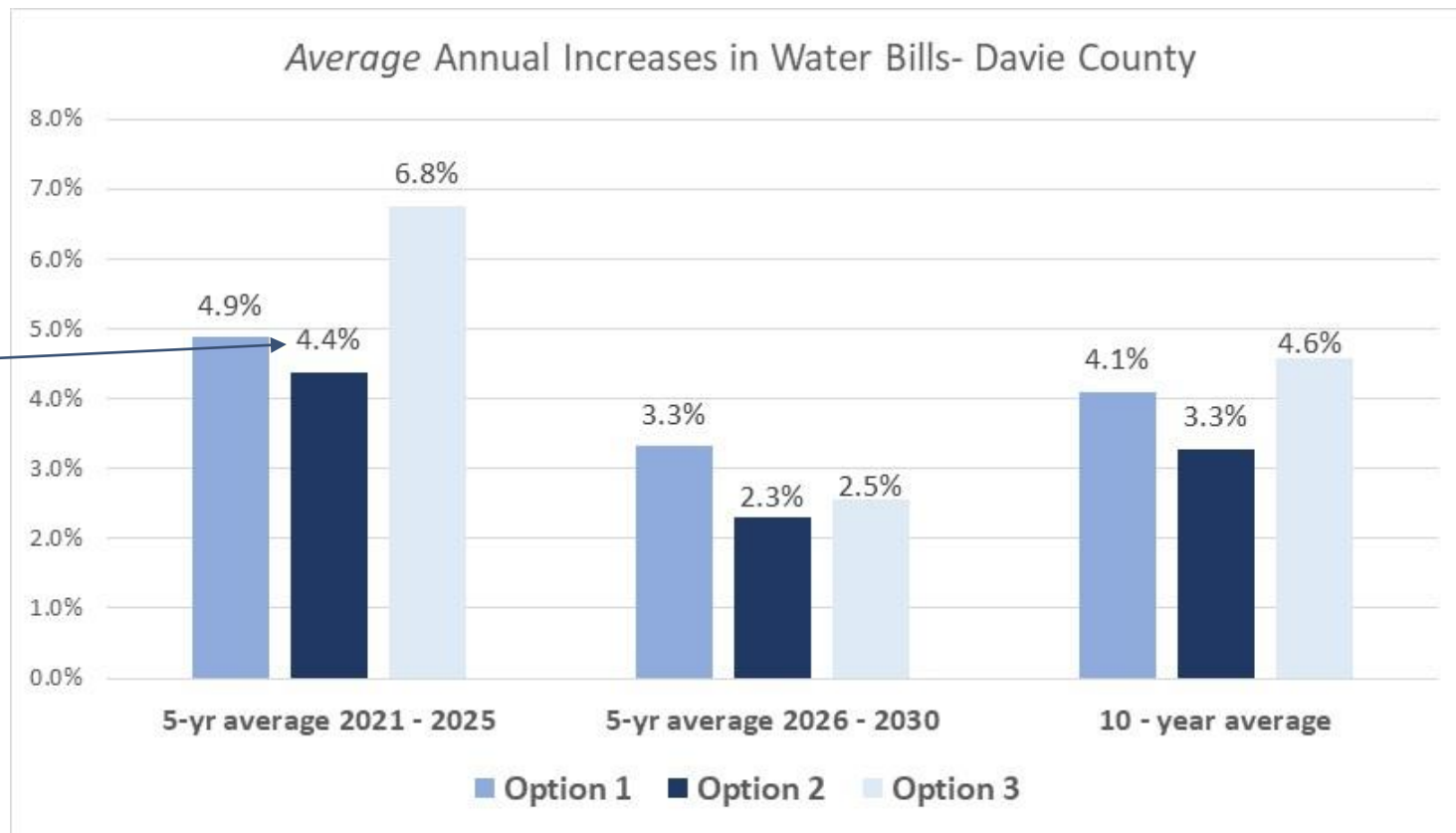
Original Rate Study assumed no grant funding or reduced interest rates

4.5% with awarded  
funding to date

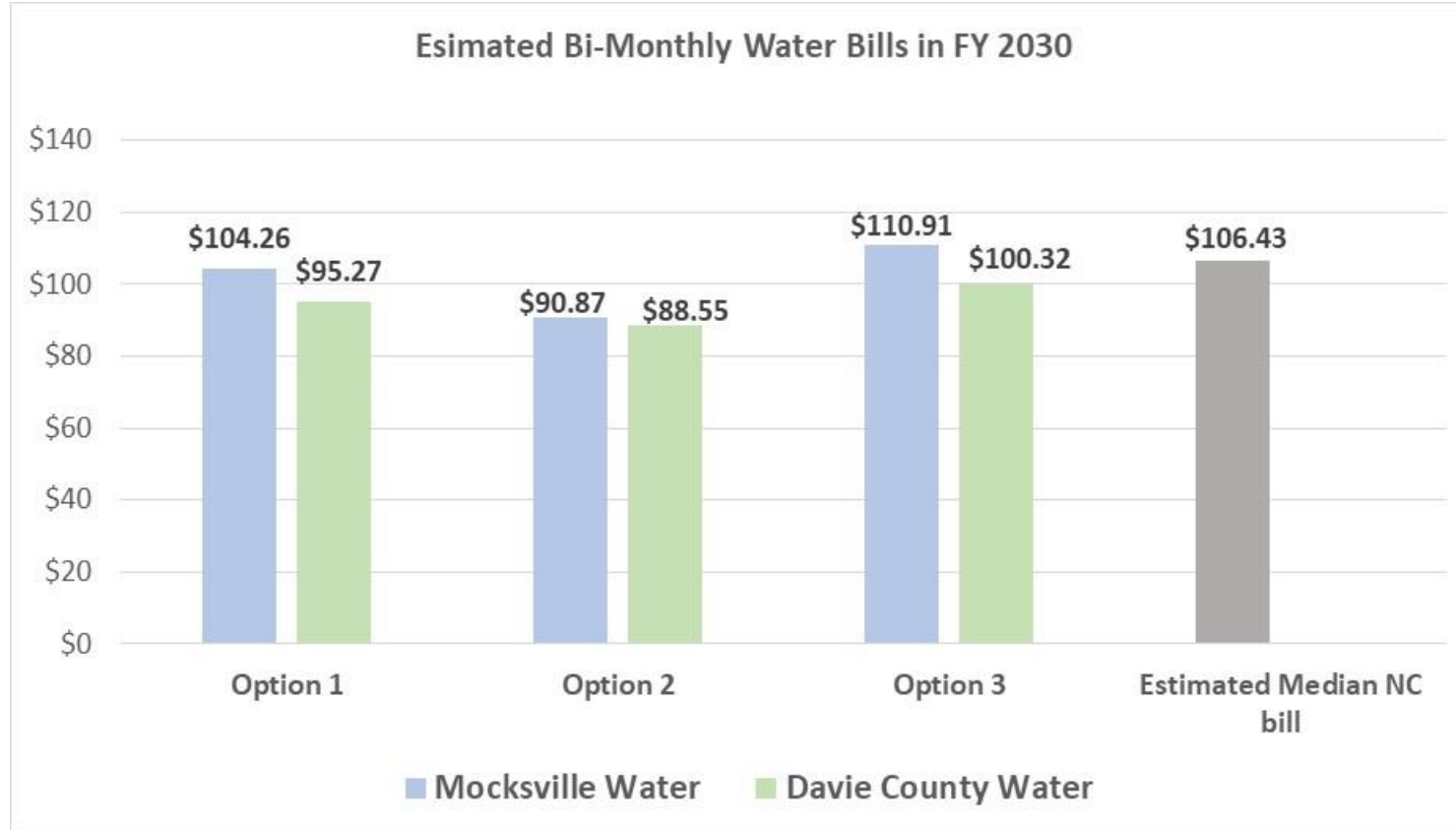


# Estimated Customer Impacts – Davie County

Original Rate Study assumed no grant funding or reduced interest rates



# Estimated Customer Impacts – Comparison



*Average bill based on 10 kgal of bi-monthly use*



# Total Funding Awarded to Date

- The County is continuing to pursue additional funding opportunities, including grants

Funding Source	Approved Amount
DWSRF Low Interest Loan (0.1%)	\$24,926,193
DWSRF Principal Forgiveness	\$2,000,000
State Reserve Project Grant	\$1,123,807
EDA Grant Award	\$1,587,000
Total Project Funding to Date	\$29,637,000

## Questions/Comments

- Please use Microsoft Teams Live chat to submit questions during the Public Meeting
- Questions can also be submitted to:  
Johnny Lambert, Utilities Director  
298 E. Depot St., Suite 200, Mocksville, NC 27028  
[jlambert@daviecountync.gov](mailto:jlambert@daviecountync.gov)
- Any public questions or comments received by January 25, 2022 at 5:00 p.m. will be acknowledged with a response and submitted for the record.